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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/416,368	10/12/1999	DAVID J. CORISIS	3770.2US-(97	6085
7590 03/02/2004			EXAMINER	
JOSEPH A WALKOWSKI TRASK BRITT & ROSSA P O BOX 2550 SALT LAKE CITY, UT 84110			GRAYBILL, DAVID E	
			ART UNIT	PAPER NUMBER
			2827	

DATE MAILED: 03/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/416,368	Applicant(s) CORISIS ET AL.	
	Examiner David E Graybill	Art Unit 2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3,4 and 18-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 18-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 May 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: In Fig. 2, reference sign 200. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

In the rejections *infra*, reference labels are generally recited only for the first recitation of identical elements.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 4, 18-20, 22 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin (5114880).

At column 2, lines 32-38; column 3, lines 17-43; column 3, line 68 to column 4, line 4; column 4, line 42 to column 5, line 30; and column 6, line 45 to column 7, line 4; Lin discloses the following:

A method of forming an integrated circuit package, the method comprising: forming a lead frame 22 having a plurality of conductors 18 and at least one alignment feature “distal portions of leads”; coupling 21 at least

some of the plurality of conductors to a semiconductor die 20; encapsulating the semiconductor die and a portion of the lead frame with an insulating material 16; electrically isolating "severed" the at least one alignment feature from the plurality of conductors subsequent the encapsulating the semiconductor die and a portion of the leadframe; and removing the at least one alignment feature "removing the carrier structure" subsequent the electrically isolating the at least one alignment feature from the plurality of conductors (column 5, lines 28-30); forming the at least one alignment feature to include at least one aperture (opening/open space across the "pitch" of the distal portions of leads); forming the at least one alignment feature to include a plurality of apertures; forming a separation line (inherent in the process of severing) in the lead frame and wherein removing the at least one alignment feature further comprises removing the at least one alignment feature along the separation line; and forming the at least one alignment feature to include a tab 28.

A method of forming an integrated circuit package, the method comprising: forming a leadframe having a plurality of conductors and at least one alignment feature (the portion of 24 encompassed by insulating material 16, and "distal portions of leads"); coupling at least some of the plurality of conductors to a semiconductor die; and encompassing the semiconductor die, a portion of each of the plurality of conductors, and

substantially encompassing the at least one alignment feature with an insulating material 14, 16 and electrically isolating (via "removing the carrier structure") the at least one alignment feature from the plurality of conductors; and providing a tie bar 24 and forming the at least one alignment feature in the tie bar.

A method of forming and testing an integrated circuit package, the method comprising: forming a leadframe having a plurality of conductors and at least one alignment feature; electrically coupling at least some of the plurality of conductors to a semiconductor die; encompassing the semiconductor die, a portion of each of the plurality of conductors, and substantially encompassing the at least one alignment feature with an insulating material; electrically isolating the at least one alignment feature from the plurality of conductors; coupling the at least one alignment feature encompassed by the insulating material with a portion of a testing device "test socket"; and testing the integrated circuit package through at least some of the electrically coupled conductors.

To further clarify the disclosure of at least one alignment feature "distal portions of leads," the at least one alignment feature to include at least one opening/open space across the pitch of the distal portions of leads, and at least one alignment feature in the tie bar, it is noted that the distal portions of the leads, the opening/open space across the pitch of the distal

portions of leads, and the portion of 24 encompassed by insulating material 16 are inherently in alignment with the claimed package elements; for example, they are in alignment with the insulating material 16. In any case, the limitation "alignment" is a statement of intended use of the feature which does not result in a structural or manipulative difference between the claimed feature and the feature of Lin. Further, because the feature of Lin has the same structure as the claimed feature, it is inherently capable of being used for the intended use, and the statement of intended use does not patentably distinguish the claimed feature from the feature of Lin. Similarly, the manner in which a product operates is not germane to the issue of patentability of the product; Ex parte Wikdahl 10 USPQ 2d 1546, 1548 (BPAI 1989); Ex parte McCullough 7 USPQ 2d 1889, 1891 (BPAI 1988); In re Finsterwalder 168 USPQ 530 (CCPA 1971); In re Casey 152 USPQ 235, 238 (CCPA 1967). And, claims directed to product must be distinguished from the prior art in terms of structure rather than function. In re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does [or is intended to do]." Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject

matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (5114880).

As applied to claims 1, 3, 4, 18-20, 22 and 26, Lin discloses the following:

A method of forming and testing an integrated circuit package, the method comprising: forming a lead frame having a plurality of conductors and at least one alignment feature; coupling at least some of the plurality of conductors to a semiconductor die; encapsulating the semiconductor die and a portion of the lead frame with an insulating material; electrically isolating the at least one alignment feature from the plurality of conductors

subsequent the encapsulating the semiconductor die and a portion of the lead frame with an insulating material; coupling the at least one alignment feature with a portion of a testing device; and testing the integrated circuit package through at least some of the electrically coupled conductors.

However, Lin does not appear to explicitly disclose decoupling the at least one alignment feature from the portion of the testing device; and removing the at least one alignment feature subsequent the decoupling the at least one alignment feature from the portion of the testing device.

Nevertheless, Lin discloses, "At the point of manufacture at which the carrier structure is no longer needed, be it after testing, prior to shipment, or at the customer site, the leads 18 may be severed," and, "it may also be suitable for the leads to be severed and even formed prior to removing the carrier structure." Therefore, it would have been obvious to decouple the alignment feature from the testing device and remove the feature subsequent the decoupling because it would facilitate shipment after testing, and removal of the carrier at the customer site.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin as applied to claim 20, and further in combination with Tateno (4589010).

Lin does not appear to explicitly disclose wherein the forming a separation line in the lead frame includes perforating the separation line.



Nonetheless, at column 2, lines 24-26; column 4, lines 1-14; column 4, line 63 to column 5, line 43, Tateno discloses wherein the forming a separation line Y-Y in the lead frame 15, 16 includes perforating 25, 26 the separation line. Moreover, it would have been obvious to perforate the separation line of Lin because it would enable easily removing the at least one alignment feature along the separation line without damaging the encapsulating housing 14.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin as applied to claim 3, and further in combination with Wyland (5986885).

Lin does not appear to explicitly disclose forming the at least one alignment feature to include an alignment cut-out.

Still, Lin discloses that the alignment feature 24 is a tie bar, and leads, and Wyland discloses a cut-out "stamped out" tie bar 22 and lead 21. In addition, it would have been obvious to cut-out the alignment feature 24 of Lin in order to provide it.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin as applied to claim 3, and further in combination with Mehr (5530295).

Lin does not appear to explicitly disclose disposing a heat spreader adjacent to and in contact with an external surface of the insulating material and, forming at least one other alignment feature in the heat spreader.

Regardless, at column 2, line 28 to column 3, line 9, Mehr discloses a heat spreader 22 adjacent to and in contact (at least thermal contact) with an external surface of the insulating material 16 and, forming at least one other alignment feature 38 in the heat spreader. Furthermore, it would have been obvious to combine the heat spreader of Mehr with the package of Lin because it would facilitate heat dissipation.

Applicant's remarks filed on 11-21-3 have been fully considered and rendered moot by the rejection supra.

The art made of record and not applied to the rejection is considered pertinent to applicant's disclosure. It is cited primarily to show inventions similar to the instant invention.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will

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expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Any telephone inquiry of a general nature or relating to the status (MPEP 203.08) of this application or proceeding should be directed to Group 2800 Customer Service whose telephone number is 703-306-3329.***

Any telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (703) 308-2947, or after about 02/05/04, (571) 272-1930. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.

The fax phone number for group 2800 is (703) 872-9306.



David E. Graybill  
Primary Examiner  
Art Unit 2827

D.G.  
4-Feb-04